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April 7, 8, 9, 1927, at Columbus

Reserve the dates

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Educational Research Bulletin

USING SCHOOL BUILDINGS EFFICIENTLY

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The stupendous increase in school enrollment makes it more imperative than ever to "stretch" the buildings in order to avoid part-time attendance. Many school buildings are being used efficiently. Other buildings which are so crowded that it would seem they could not possibly accommodate another pupil, somehow or other, are being stretched to include them. In other schools, there is found what seems to be an unnecessary waste of space.

It is exceedingly difficult to define "100 percent efficiency." This report describes a method used by the writer to measure the use of the senior high-school building at F—. The new high-school building was occupied for the first time in the fall of 1923. It was originally designed to accommodate 1,800 pupils. By September, 1925, 2,050 pupils were enrolled. In October, 1925, the high-school principal reported that it would be necessary to provide for an additional 200 at the mid-year, and possibly 200 more by the following September. The problem then was how to increase the efficient use of the building in order to take care of an enrollment ranging from 2,250 to 2,500 pupils. Many school principals have faced similar problems, indeed, many are now facing them, or will in the near future, if high-school attendance continues to increase.

In considering the problem, it was decided that we did not want to resort to double sessions, shorter periods, a longer school day, or increased teaching-loads. Naturally, by using any of these four methods the capacity of a building may be enormously increased. Double sessions will double the capacity of a building but will not do so without decided injury to the educational welfare of the pupils. Shorter periods, but a larger number of them, will also increase the number of pupils that a building may accommodate. It is obvious that 7, 8, or 9 forty- or forty-five-minute periods will provide for a larger number of pupils than 6 sixty-minute periods will accommodate. Although there is little data to prove the comparative effectiveness of the sixty-minute period over the forty- or forty-five-minute period, yet there is a decided feeling among administrators that the sixty-minute period is superior.

The school day at F— had already been lengthened, and the teachers were expected to be on duty from 8:15 until 4:00. They were required to carry a teaching-load of five regular subjects and one period of extra duty assignments. If the day were lengthened sixty minutes, the capacity of the building would have been increased by approximately one-sixth. This would have meant seven one-hour periods, and although this plan had been used in a few places, we did not feel the necessity of resorting to it in our situation.

Neither did we feel justified in increasing the teaching-load, that is the average number of pupils assigned to each period, although the loads were light compared with those carried by high-school teachers in larger cities. If the teaching-load had been increased by 2, 3, 4, or 5 periods per day the capacity of the building would have been immediately increased. The average pupil-load was approximately 25.

Confronted with such a problem, the first necessity was to know the school building and know it thoroughly. The superintendent therefore asked the Department of Research and Statistics, in cooperation with the high-school principal, to make an efficiency study of the building. The meager literature available did not provide an outline for such a study, and it was therefore necessary to evolve a method. After considerable experimentation with different suggestions a so-called "table of efficiency" was derived.

In Table I, the portion of the efficiency table which recorded the facts regarding the 34 regular classrooms is summarized at the end of the table, while the facts for the 37 special rooms are given in detail. Each room was given a number. This was true not only of classrooms but also of shops, laboratories, auditorium, stage, swimming pools, gymnasium, special lecture rooms, music room, study rooms, radio rooms, locker rooms, janitors' offices, storage space, etc. In other words, every bit of space in the building was numbered. Certain rooms which did not directly affect the pupil-capacity of the building, such as, dressing rooms, boys' lockers, girls' lockers, various offices, and the like, although numbered are not listed in Table I.

In an emergency, such as that confronting this high-school principal, space which may be converted into classrooms is often overlooked. If some such scheme as the efficiency table is not resorted to, the school officials cannot be certain that all the available space for classroom purposes is being used and used at reasonable capacity. The entire space within the building must be considered regardless of its present use.

In the first column of the efficiency table, the use to which each unit of space was put, was recorded. For example, Room 1 was adjacent to the cafeteria and was used as an overflow from the lunch room. In a similar manner, all the special rooms in the building were designated. Not only were the dimensions of each room given, but they were converted into the number of square feet of floor space. Each room was measured in order to obtain accurate data to record in this column.

The fourth item considered was the "period capacity." This was a difficult item to compute especially for rooms used for other than class activities. For regular academic class activities, the number of square feet in the floor area was divided by 16—the number of square feet arbitrarily allowed per pupil. In special rooms, it was sometimes necessary to measure the capacity of the room by the amount of equipment. This method was open to a serious fallacy. For instance, a large room, which was equipped with only 24 manual-training benches on the general theory that a class of 24 pupils was as large a number as a manual-training teacher should handle at one time, might have had space for 30 benches. The same was true of rooms used for home economics, art, sewing, pattern making, and most of the science laboratories.

These special rooms require an enormous amount of space in every modern high-school building. Probably less efficiency is obtained in planning and using the space devoted to these newer laboratories and shops than exists in planning and using the space devoted to regular classrooms. In fact, it is impossible to find a standard determining

TABLE I

REPORT ON ESTIMATED CAPACITY AND ACTUAL USE OF THE F—— SENIOR HIGH SCHOOL FOR THE WEEK OF NOVEMBER 9 TO 16, 1925

Type	Room Number	Number of Square Feet in Room	Period Capacity	Weekly Capacity 100 Percent	Weekly Capacity 90 Percent	Weekly Capacity 80 Percent	Actual Weekly Use	Actual Percent Used
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Special Rooms (37 in all)								
Lunchroom	1	418	26	780	702	624	.....	.....
Metal shop	2	2,100	25	750	675	600	635	87
Sheet metal shop*	2C	946	25	750	675	600	60	8
Jr. Col. phy. lab.††	4	224	10	300	270	240	48	16
Auditorium†	101	4,928	986	29,040	26,136	23,232	725	.....
Stage‡	101S	637	39	1,170	1,053	936	760	63
Pool	105	1,875	.....	.....	.....	.....	.....	.....
Printshop§	106, 110	1,166	24	720	648	576	225	35
Biological lab	112	572	24	720	648	576	509	71
Art	113	880	35	1,050	945	840	530	50
Sewing	119	616	24	720	648	576	645	90
Sewing	121	814	32	960	864	768	600	62
Cooking laboratory	123	880	35	1,050	945	840	485	46
Practice dining room	.....	196	12	360	.....	.....	.....	.....
Woodworking shop	124	1,188	30	900	810	720	445	49
Pattern shop§	126	968	30	900	810	720	.....	.....
Cafeteria	127	3,120	.....	.....	.....	.....	2,130	.....
Boys' gym	202	5,190	85	2,550	2,295	2,040	4,075	80
Girls' gym	205	5,190	85	2,550	2,295	2,040	.....	.....
Biological lecture	216	572	36	1,080	972	864	1,005	96
Music§	218	572	36	1,080	972	864	800	74
Typewriting room‖	219	572	36	1,080	972	864	685	63
Bookkeeping room	223	572	36	1,080	972	864	1,045	97
Physics lecture room††	225	572	36	1,080	972	864	700	65
Physics lecture room	226	572	36	1,080	972	864	476	44
Physics laboratory	230	814	26	780	702	624	825	105
Chemistry laboratory	232	792	24	720	648	576	890	123
Chemistry laboratory§	236	972	24	720	648	576	665	92
Chemistry lecture room	238	484	30	900	810	720	790	87
Biological laboratory§	240	792	24	720	648	576	910	126
Library	300	4,161	150	4,500	4,050	3,600	2,495	55
Junior College library	300B	961	35	1,050	945	840	1,225	117
Desk room	301A	208	13	390	351	312	45	11
Study hall	303	2,052	128	3,840	3,456	3,072	5,805	151
Desk room	304A	540	34	1,020	918	816	.....	.....
Mechanical drawing**	402	2,071	48	1,440	1,296	1,152	865	60
Radio laboratory	501	704	44	1,320	1,188	1,056	100	7
Total	.....	49,891	2,323	69,150	61,911	55,032	31,198	46
Regular Classrooms (34 in all):								
Total	.....	19,792	1,241	37,230	33,507	29,784	27,650	.....
Average	.....	582	37	1,095	985	876	813	76
GRAND TOTAL	.....	.....	.....	106,380	95,418	84,816	58,848	55

*Used three periods daily.
†This percent cannot be figured fairly. Based on one class of 35 as the average. Percent is over 100 percent.
‡Part of these groups meet in the auditorium.
§Number of pupils who elect courses which may be given in this room is small.
‖Based on room for 39 typewriters, 32 on hand, raises the percent to 71 percent.
**Based on a seating capacity of 52. Classes can average 35 giving only 83 percent.
††Used in part or wholly by Junior College.

the amount of space per pupil which should be allowed for these special activities. The surveyor, therefore, must arbitrarily decide how many square feet he will allow each pupil in the different laboratories and shops. This will require

many conferences and a willingness, on the part of those concerned, to consider relative values. When this is done for a given building, it is possible to compute the items given in columns 1 to 7 of Table I.

The "weekly capacity" of a building was the period capacity multiplied by the number of periods per day which was, in turn, multiplied by the number of days per week. We called this figure 100 percent on the theory that a room so used was used to its maximum efficiency under the program in operation. The actual weekly use was similarly figured for each room.

We found it a good plan to make a permanent mimeographed record of all the items in columns 1 to 7 leaving blank the items in columns 8 and 9. The items in these columns could then be filled in at any time and for any week. In this way a permanent efficiency chart was made available. By consulting this chart when the program was being arranged, it was possible for the principal to determine at a glance whether or not he was using all his classroom space efficiently.

Two examples of rooms which were not used efficiently will make clear the use of this table. Classroom 120, which measured 22 feet by 36 feet and contained 814 square feet of floor space, was capable of accommodating 50 pupils a period (16 square feet per pupil) or 1,500 pupils during the thirty periods of the week but was actually being used to only 24 percent of its capacity. What should the principal do in such a case? Obviously, he should assign the very largest possible classes to this room. Although it might not be possible for him to fill such a large room every period, he undoubtedly could increase its efficient use from 40 to 60 percent. This particular room was equipped with seats for fifty pupils, and, by rearranging the schedule, it was possible to increase its use by more than 40 percent. Room 122, a classroom of typical size, 22 feet by 26 feet, was used only 42 percent of the time. Many small classes were scheduled to meet in this room. When these small classes were transferred to smaller rooms and this room was used by classes of normal size, its efficiency was increased from 42 to 78 percent.

A partial idea of the use of this building at the time of the survey may be gained by studying the following facts. For the seventy-one rooms which might have been used for instructional purposes, the following percents of efficiency of use were computed:

Number of Rooms	Percent of Efficiency of Use
4	Not used
4	0– 10
2	11– 20
2	21– 30
2	31– 40
5	41– 50
4	51– 60
12	61– 70
9	71– 80
13	81– 90
6	91–100
8	More than 100

The total of column 5 in the complete efficiency table, gave us the *ideal weekly capacity* of the building which amounted to 106,380. The total of column 8 gave us the actual use of the building for the week of November 9 to 16, 1925, which was 58,848. A comparison of these figures showed that the building was used 55 percent efficiently. The average efficiency of the 34 regular classrooms was 76 percent, while the 37 special rooms averaged only 45 percent.

There were 2,050 pupils enrolled in this building at the time of the survey. These pupils required 62,685 "sittings" per week—for lack of a better term the weekly capacity of a particular room was called "sittings"—that is, one pupil required on the average 30.6 sittings per week. In other words, the ratio of pupils to sittings is as one is to 30.6.

Assuming for a moment that the efficiency of this building could be increased, the question arose, How much could it be increased? On the basis just given, the total of 106,380 sittings (the sum of column 5) would have provided for 3,479 persons. In other words, if all the space in the building were used for the six periods of the day and every day of the week at its maximum capacity, the building would provide for 3,479 pupils.

It is obviously impossible to use a school building to its maximum capacity as thus defined. The next question then is, What is its reasonable capacity? Columns 6 and 7 give the capacity of the school building under discussion on the basis of 90 and 80 percent, respectively. Let us assume that it is reasonable to use a building at 80 percent of its ideal efficiency. The reader will recall that we were actually using the building at 55 percent of its ideal efficiency. If we were to use it at 80 percent of efficiency, we could increase its use by 25 percent. If 55 percent takes care of 2,050 pupils, at the same ratio, 25 percent will take care of approximately 822 pupils. This sum added to 2,050 gives a total of 2,872 and shows the capacity of the building if used at 80 percent of its ideal efficiency.

Unfortunately, we do not have any figures available to show how efficiently school buildings are being used, nor do we have any standardized method of computing efficiency. The facts here summarized are given as suggestions only, and not as criticisms.[3] We may add in conclusion that the high-school building here referred to finally accommodated not only the additional two hundred pupils enrolled in mid-year but also the additional pupils who were enrolled in September, 1926, and who will be enrolled during this February.

SELECTING A SPELLING BOOK

O. G. BRIM
Ohio State University

THE textbook is of paramount importance in the work of the modern school. In large measure it determines the social heritage to which children are exposed. In the surveys of teaching practice in the rural schools of New York[1] and Texas,[2] the assignments of advanced work made by the teachers in four out of five lessons throughout the grades and in all subjects, were "the next lesson" or the "next few pages." The recitation consisted in 85 percent of the cases of "drill" or "textbook rehearsal." A quite similar situation would be found in any other state. Since the teacher makes so little effort to suit the textbook to her pupils or to enrich its content, wise selection becomes extremely important.

The selection of a textbook is a most difficult undertaking, taxing to the limit one's professional knowledge. As we become aware of the many detailed items that affect the rate and quality of learning, the selection of textbooks becomes increasingly more difficult, because standards for good textbooks in the several subjects can scarcely be said to exist. Difficult as it is to state the

[1] See Rural School Survey of New York State, *The Teaching Personnel*, pp. 190, 193.

[2] Texas Educational Survey Commission, *Texas Educational Survey Report*. 1924. Vol. V, pp. 366, 374.

[3] The author would like to encourage the school officers to make critical surveys of the efficient use of their buildings and send him a description of the method which they use together with the results.

desirable qualities of a good textbook, the determination of just what that quality specifically is and whether a given book does or does not have it is far more difficult. The selections in readers should have literary merit, be interesting to children, and properly graded as to difficulty of comprehension both with reference to the words used and the ideas expressed. The enumeration of such qualities is easy and fairly reliable but extremely difficult to apply. A history text should instill respect for those who have contributed to our nation's welfare and develop pride in and loyalty to our American civilization and a willingness to strive to perpetuate and improve our social ideals. At the same time, it should build a wider social sympathy and a desire to promote human well-being in general. In view of this, how much space in history should be given to a discussion of military and how much to civil leaders? How much space should be given to a discussion of the causes, results, and activities of war and how much to the efforts to settle human differences by peaceful means? How shall war be pictured? Shall stress be placed upon the heroic and the adventurous aspects or upon its destructive aspects?[1]

These are fundamental and difficult questions. To answer them requires time, keen insight, and sound professional standards. The practical school man wants advice upon the best textbooks and his question goes unanswered for the reasons just mentioned. Research here will prove extremely fruitful and welcome. This report upon spelling textbooks is a portion of a larger study of the question of textbook selection and is limited to a certain phase of that problem.

What are the essential features of a good spelling book? Again, there is no commonly accepted standard. In the main most people would grant that, among other requirements, a spelling book should contain a scientifically selected word list which is graded as to difficulty. Even these simple standards are not safe. The first might not be granted by those who hold that it is primarily the function of the teaching of spelling to interest the child in a study of words, their meanings and origins. To interest him in as many words as possible, and to enlarge and enrich his vocabulary thereby, would to them be the purpose of spelling instruction, rather than practically to limit his attention to a list determined by current usage in written expression and to center attention primarily upon fixing the letter combinations by drill.

The importance of grading words as to difficulty might be questioned by

TABLE I

NUMBER OF WORDS IN THE LISTS GIVEN FOR GRADE III AND GRADE VI NOT FOUND IN HORN-ASHBAUGH LIST

	New World Speller	Progressive Course in Spelling	Essentials of Spelling	Aldine Speller
(1)	(2)	(3)*	(4)	(5)
	Grade III			
Words for Grade III	1,044	1,443	430	946
In lists*	257	622	12	86
In sentences	50	24	55	214
Number not in Horn-Ashbaugh list	307	646	67	300
	Grade VI			
Words for Grade VI	1,443	2,350	646	1,179
In lists	489	1,583	81	318
In sentences	57	94	99	108
Number not in Horn-Ashbaugh list	546	1,677	180	426

* The words in lists were kept separate from those occurring in sentences. Only those sentences were used which were intended for dictation.

[1]For a presentation of this situation see *An Analysis of the Emphasis upon War in Our Elementary School Histories*. Association for Peace Education, 5733 Blackstone Ave., Chicago.

those who hold that words should be taught as they are needed or as they attract the interest of the child. These procedures may come in time to supplant the present purpose and procedure, but as long as we use spelling lists in the way we do, they should be carefully selected and relative difficulty should be known and provided for.

It would have been interesting to compare here all the spelling books used in the state with some commonly accepted list of words, but such a list does not exist. Thorndike's "Word List" is sometimes referred to but it is not a spelling list. It was decided to compare the books with the revised Horn-Ashbaugh list. This was done for three reasons: the words, composing this list, were available in alphabetic order with the grade placement given after each word; the words were graded as to difficulty; and, taken together, they form one of the most, if not the most, carefully selected list of spelling words. It would have been profitable to compare all the spelling books in use in the state with the Horn-Ashbaugh list, but

TABLE II

COMPARISON OF THE DISTRIBUTION OF THE WORDS BY GRADES IN EACH SPELLER WITH THAT IN HORN-ASHBAUGH LIST

	Grade I	Grade II	Grade III	Grade IV	Grade V	Grade VI	Grade VII	Grade VIII
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Grade III							
New World Speller:								
Lists	92	183	215	161	47	5	1	.....
Sentences	35	24	13	10	3	1	.....	.....
Progressive Speller:								
Lists	30	148	177	178	136	50	22	10
Sentences	39	19	8	8	2	3	1	.....
Essentials in Spelling:								
Lists	8	103	96	37	6	1	.....	.....
Sentences	8	30	25	39	5	5	.....	.....
Aldine Speller:								
Lists	31	102	135	113	64	17	6	3
Sentences	83	45	20	14	4	4	2	3
	Grade VI							
New World Speller:								
Lists	21	38	44	120	209	192	76	36
Sentences	45	33	29	22	14	10	6	2
Progressive Speller:								
Lists	4	17	29	42	79	89	131	93
Sentences	61	32	27	29	23	11	4	2
Essentials of Spelling:								
Lists	.....	1	2	17	53	86	50	18
Sentences	2	9	22	68	65	38	31	4
Aldine Speller:								
Lists	2	13	32	90	129	127	118	54
Sentences	67	43	30	20	14	5	7	2

because of lack of time only the four books[1] frequently used were studied. In making the comparison, the work was further confined by limiting the study of the words found in the third and sixth grades in each of the four books. This, it was thought, would give a fair basis of comparison.

Table I shows how these books vary in the number of words selected. It reads as follows: In the *New World Speller* there were 1,044 different words in the third-grade section, for a word appearing more than once was counted only the first time, and 1,443 in that for the sixth. Of these, 307 words in grade three and 546 words in grade six are not found in the Horn-Ashbaugh list for the first eight grades.

If one reads the introduction to these several books he will find, with the exception of the *Progressive Course in Spelling*, that each claims that the vocabulary of the book is based upon the lists that grew out of scientific investigation concerning the writing vocabulary of the average person. Evidently in selecting a textbook one must look deeper than the introduction.

In all the books, with the exception of the *New World Speller*, one finds also the claim that the words have been graded according to "difficulty," to meet the "needs of children," or "in harmony with his advancement." The extent to which the distribution of words through the grades compares with that found in the Horn-Ashbaugh list is shown in Table II.

Taking the Horn-Ashbaugh list as a basis, the table reveals that the other books not only include many words not in this list, but the few words found in common and placed by these several authors in the third and sixth grades are distributed by Horn and Ashbaugh, with few exceptions, in all the grades from the first to the eighth. In terms of the standard the books are not of equal difficulty. The book entitled *Essentials of Spelling*, for third grade is considerably easier than the Horn-Ashbaugh, while Hunt's *Progressive Speller* is harder than the Horn-Ashbaugh. Therefore it offers even greater difficulty when compared with the Pearson-Suzzallo book.

This inconsistency in the selection and grading of words indicates how uncertain we are as to the essentials of a good spelling list. In view of the extreme care exercised in the selection and grading of words in the Horn-Ashbaugh list, the wide discrepancy shown by this comparison should cause one to select not only spellers but all other textbooks with great caution.

ON THE FIRING LINE

The new Shawnee school building was dedicated on October 22. This building provides accommodations for the elementary grades and the high school. Superintendent Arganbright says it is considered one of the finest rural school buildings in the country. Ten trucks are needed to bring the pupils from the more distant parts of the school district.

One issue of *The Orange and Black*, the paper of the Upper Sandusky High School, was devoted recently to the outline of the objectives of the senior and junior high schools. The detailed schedule of each school was also included.

[1]The four spellers are:

New World Speller by Julia H. Wohlfaith and Lillian E. Rogers. (World Book Company, 1920).

Progressive Course in Spelling by J. N. Hunt. (American Book Company, 1910).

Essentials of Spelling by H. C. Pearson and Henry Suzzallo. (American Book Company, 1921).

Aldine Speller by Catherine T. Bryce, Frank J. Sherman, and Arthur W. Kallom. (Newson and Company, 1921).

A new junior high-school building is to be erected in Bowling Green at a cost of about $275,000.

Mrs. Margaret S. Brainerd, assistant superintendent at Martins Ferry, in a recent letter, said that the librarian of the city schools has been cataloguing pictures purchased from the *National Geographic*, *Mentor*, and other illustrated magazines. These pictures will be mounted and circulated among the teachers of the town to be used as aids in the geography lessons.

The mimeographed school paper, "The Orange Peal," is distributed by the schools of Orange Township. Although less pretentious than some of the printed school papers, it contains many items of news, contributed by the high-school students.

Miss Pope, the assistant principal of East High School, Cleveland, in a recent letter, told of activities, used to enliven the course in classical history, in which the pupils gave excerpts from the plays of Aristophanes, arranged demonstrations of Olympian games, and studied the formation of the phalanx.

A department of school publicity was started in the Martins Ferry *Daily Times* about two years ago. This section has proved of great interest to the people of the community, and it keeps them familiar with new methods which are being used and other items of school news. About one column each day is allowed to this section of the paper. On November 17, the items listed under the school news section included the Junior Class Play, Luncheon for High-School Faculty, the Zane Junior High School Enrolls Parents in School Association, Teachers Elect Convention Delegates, together with notes about the school annual and the school band.

All the school children of Rocky River are given thorough physical examinations. The school nurse follows up the record made by the physician, and the physical-education teachers plan the courses of individual pupils to correct the physical defects reported by the doctor in his examination.

Superintendent Wickerman fills out duplicate copies of a "Supervisory Visitation Record" at the close of his weekly visit to each schoolroom in Orange Township. One copy he files in his own office; the second copy he gives to the teacher. A number of headings appear upon this blank, among which are: Type of Lesson, Procedure, Good Points, Weak Points, Supplementary Notes, and Suggestions Made. The teachers are pleased with this system of records and cooperate heartily. Perhaps the key to the situation is found in the note at the foot of the sheet, "Remember that the supervisor is a 'helping-teacher,' not an inspector."

A rather extensive testing program has been carried on in the schools of Fort Recovery during the autumn months. The Haggerty Intelligence Tests, Delta I and II, were used with the elementary-school pupils, while the Miller Mental Ability Test was administered in the junior and senior high schools. The Woody-McCall Mixed Fundamentals in Arithmetic, a column test in spelling arranged from the Ayres Spelling Scale, and the Thorndike writing test have been used to determine progress in the elementary school. All grades but the fifth made average scores equal to the norms of the respective grades. The Monroe Silent Reading Test will soon be added to the testing roster of the Fort Recovery schools. Superintendent Young says the testing program "makes a lot of work but we feel that the results are worth the effort."

Ohio State University

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BETTER SCHOLARSHIP

How shall we secure higher scholarship? There is a continued complaint that scholarship is low among the rank and file of the student body; that too many are content to just "get by;" that it is impossible to maintain the standard that should be maintained or that was maintained in earlier days. The complaint is heard from teachers and administrators, from secondary schools, colleges, and universities. The causes assigned most frequently are overcrowding in our schools—especially by those of low mentality—and the distraction of other activities, social and extra-curricular.

The complaint is not new, in fact, we wonder how many of the present generation realize how timeworn the complaint really is. Turning back the pages of history, we find school masters of each successive generation uttering the same complaint. It is true that they have attributed different causes, but the complaint is the same. Satan himself was given the credit at one time; laziness, at another; stupidity—we now call it low mentality—at another. The assigned cause, however, has ever been within the student until now, when honors are divided between "too little within, too much without."

Efforts to raise the level of scholarship have also characterized preceding ages as well as our own. The birch and the dunce cap have a well-defined place in the annals of education. Both are in disfavor at the present time, but we have found substitutes which we call eligibility for athletics and honor societies, and entrance examinations intended to exclude those who will presumably lower the scholarship level. The rod and the cap were not eminently successful; eligibility rules and honors seem not to be greatly more so, and we have our doubts about exclusion being the solution to the problem.

The reason for these failures and the reason for low scholarship are not difficult to find if we but look all around instead of in one direction only; if we look within as well as without. The immediate reason why these schemes are not, and cannot be, successful is that high scholarship is the product not only of ability to do but also of the desire to do. Also, this ability and this desire must focus upon materials and activities which are worthy of time and effort. These materials and activities are certainly not inherent in the student. The desire may or may not exist, but it is subject to powerful stimulation from without.

In other words, the major factors affecting high scholarship of students lie rather with the teacher and the curriculum than with the student. Of course there must be some ability. One cannot magnetize a clod, but neither can iron magnetize itself nor can it be magnetized by a dead coil. Only scholarship can beget scholarship. When the teacher knows but little more in his own field, and even less outside, than his students, no great admiration for scholarship nor a desire for it need be expected. Few primary teachers complain of lack of desire for learning among their pupils. The knowledge and experience of the

teacher is so much greater than that of her pupils and their curiosity is continually being both satisfied and stimulated. This is fundamental in the development of scholarship.

A second factor needed in the teacher is teaching technique. However great the supply may be in the reservoir, unless there is an efficient outlet the people go thirsty. While there may be an advantage in having people "thirst after knowledge," there must be provision for slaking the thirst in an effective way if we are to expect any desire for recurrence of the thirst. No student is ever inspired with a desire for scholarship by a teacher who cannot or does not clearly explain, effectively present, and attractively reveal new vistas in his field of knowledge.

A third factor quite as important is human sympathy. All of us begin life, even our school life, quite ignorant. We also begin it with, or at least show evidence at an early age of, a vast curiosity to know. There is enough knowledge in the world to feed this curiosity throughout a lifetime. Many pupils, though, do not retain this curiosity, or at least they cease revealing it freely because they continually encounter lack of sympathy. They are embarrassed, humiliated, or hurt by teachers who should welcome the opportunities presented by this curiosity to stimulate more curiosity while satisfying the present. High scholarship is not produced by students who have their curiosity stifled by their teachers. Curiosity must be stimulated if scholarship is desired, and sympathy is essential to this stimulation.

A fourth factor is enthusiasm. No student is inspired to high scholarship in any field whose teacher is not enthusiastic about the beauties, the benefits, and the opportunities in the field. No teacher can make attractive that which is not attractive to the teacher herself.

Another vital element in the production of higher scholarship is the curriculum. This must be re-examined from the standpoint of present-day life. It must contain materials which youth itself can see are significant in life today and tomorrow. Most students in our high-school and undergraduate courses cannot be stimulated to their best efforts, nor can they develop any great curiosity about activities which do not even remotely affect the life they know and live. The materials of instruction must be vibrant to the abundant life which our students know, if high scholarship is to be expected.

Many other factors could be named which are essential to high scholarship on the part of students but enough has been said to show that we need look more to the teacher and the curriculum than we have usually done. High scholarship will not be greatly encouraged by bribes and punishments, by the sting of entrance examinations, or by the fear of exclusion. What is needed is not fewer boys and girls on one end of the log, but more, many more, Mark Hopkinses on the other.

E. J. A.

THERE seems to be a tendency to try job-analysis on every sort of occupation. A recent application of this technique to the field of supervision is made available through the Bureau of Educational Research of the University of Wisconsin.[1] The study is particularly significant, for it points the way to supervisory officers for the objective and impersonal study of their tasks. If more superintendents and supervisors would make such analyses, they would find them both wholesome and illuminating. Wholesome, because they could then choose more wisely among the press

[1]Barr, A. S. *An Analysis of the Duties and Functions of Instructional Supervisors.* Madison, Wisconsin, University of Wisconsin. 1926. 176 pp. (University of Wisconsin, Bureau of Educational Research Bulletin, No. 7)

of duties those most needful; illuminating, for they would discover that many things, which are frequently considered supervisory activities, are but ways of routine after all.

The report of an activity analysis, like the dictionary, is interesting, but not connected, reading. More attention to arrangement and classification would obviate some of this trouble, while a more extended statement of the activity itself might help to make such a report more interesting.

Another serious defect of such an analysis is that a mere statement of an act does not reveal either its educational significance or the time value of the activity. "Visited Cleveland Schools," covers an activity that might have high professional value and might require several days of strenuous activity. On the other hand, it might be a mere casual trip, a sort of pleasure jaunt, with little definite professional value.

In spite of the limitations of method, this bulletin should prove a valuable addition to the professional shelf of every supervisory official; for it points to the importance of a definite supervisory program, exemplifies the working of an effective supervisory organization, shows the need for greater coordination of supervisory activities, and gives a basis for judging the relative values of the multitude of calls made upon the supervisor's time.

WHAT PROFESSIONAL SUBJECT IS OF MOST WORTH?

JAMES L. LAPOE
Ohio State University

THIS subject, adapted from the title of Spencer's famous essay, seems to be appropriate to use as a heading for this article, the intent of which is to present the findings of a part of a study recently made to determine the greatest problems of senior high-school principals. It is not claimed that the data given here are either conclusive or final—that they answer without further question the inquiry expressed in our title. Rather, it is believed that they are suggestive and indicative—perhaps strongly indicative—of the subjects which are of most worth to the school administrators who were concerned with this study.

The data presented here were tabulated from the responses to the following part of the inquiry:

> Check the courses you had in college or university. Underscore the one which has been of most use to you.
>
> 1. Philosophy of education
> 2. High-school curriculum
> 3. High-school administration
> 4. High-school supervision
> 5. Guidance
> 6. Educational psychology
> 7. Administrative psychology
> 8. Mental measurements
> 9. Educational measurements
> 10. Statistical methods

Senior high-school principals, 381 in number, located in every state in the Union and in the District of Columbia, participated in the study. They represent all types of public high schools, grades IX to XII and X to XII, ranging in enrollment from 42 pupils to 7,700. Because of the wide geographical and enrollment distribution, it seems that a fairly adequate and representative sampling has been obtained. The replies have been grouped according to the enrollments of the schools, as shown in Table I.

Three tables are included which show the various rankings of the ten subjects when arranged according to (1) the number of times the subjects had been

studied, (2) the number of times they were underscored as of most use, and (3) the relation between (1) and (2).

Table II gives the ranking of the number of times the ten subjects had been studied, regardless of their usefulness. It shows that the ten subjects were mentioned 2,164 times, and that educational psychology, for example, was mentioned 307 times, or 14.2 percent of the total number of times—more often than was any other subject, by

TABLE I

GROUPS, ENROLLMENT, AND NUMBER OF PRINCIPALS

Group	Enrollment	Number of Principals	Group	Enrollment	Number of Principals
(1)	(2)	(3)	(1)	(2)	(3)
I	42– 249	55	V	1,250–1,999	45
II	250– 499	111	VI	2,000–2,999	16
III	500– 749	85	VII	3,000–7,700	6
IV	750–1,249	63		Total....	381*

*There were 14 women principals, 2 in group I, 8 in group II, 3 in group IV, and one in group V.

Groups I, II, IV, and VI. The data for the other subjects are to be similarly read.

In Table III are shown the rankings when the subjects are arranged according to the number of times they were underscored as to their usefulness. This is one criterion of potency. The ten subjects were underscored, as this table indicates, 381 times, and high-school administration was mentioned 106 times, or 27.8 percent of the total number of times. The principals of the first four groups underscored it more often than any other subject. The data for the other subjects are to be similarly read.

To establish some relationship between the data shown in Tables II and III, and to determine, if possible, the potency of each subject as evaluated by these principals, these data were treated as indicated in Table IV. Columns 2 and 3 are taken from column 9 of Tables II and III; one shows the number of times each subject had been studied and the other, the number of times it was underscored as being the most useful. Dividing the numbers found in column 3 by the corresponding numbers in column 2, we obtain a ratio which indicates the utility value, or potency, of each subject. This is a second criterion.

Table IV should be read as follows: High-school administration had been studied by 306 principals and was underscored by 106, or 34.6 percent of them. Similar percents are given for each of the subjects.

No attempt will be made in this article to discuss any of the implications or applications of the data given in the tables, particularly in Table IV. The writer will confine himself for the present to indicating some of the outstanding facts disclosed. The reader may interpret and apply them in the light of his own judgment and experience. Some points that occur to the writer are:

1. Educational psychology had been studied by more principals than had any other subject, yet it falls to fourth place in potency, according to the technique used for determining potency.
2. Adolescent psychology takes eighth rank but rises to sixth place in potency.
3. Educational psychology falls, while adolescent psychology rises.
4. Guidance, although having been studied the fewest number of times, rises to seventh place.
5. Philosophy of education occupies fourth place in number of times taken and underscored, but rises to third place in potency.
6. High-school administration and supervision consistently maintain first rank positions.
7. High-school curriculum occupies fifth place according to each of the two criteria.
8. Educational measurements, mental measurements, and statistical methods

form a group of three subjects occupying the lowest rank in potency, each of the three having a ratio of less than 10 percent.

9. Educational measurements as a subject is slightly higher in potency than mental measurements.

10. Statistical methods occupy the lowest rank, both in the principals' evaluation and in the relation between the number of times the subject had been taken and the number of times it was underscored.

The reader may be interested in knowing something about the principals who have thus evaluated these ten subjects. What are their educational attainments? What evidence do they give of professional growth and continued study? How many professional journals do they read? What is the length of their service as high-school principals? How old are they? The answers to such questions could be considered as indices of the soundness of their judgments and might add

TABLE II

NUMBER OF SENIOR HIGH-SCHOOL PRINCIPALS WHO HAD STUDIED TEN DESIGNATED PROFESSIONAL SUBJECTS

Subjects	Groups of Schools							Totals	Percents	Rank
	I	II	III	IV	V	VI	VII			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Educational psychology	45	95	70	53	29	13	2	307	14.2	1
High-school administration	41	94	72	52	31	12	4	306	14.1	2
High-school supervision	31	78	64	43	25	11	4	256	11.8	3
Philosophy of education	35	76	61	44	23	11	3	253	11.7	4
High-school curriculum	29	68	57	45	24	3	2	228	10.5	5
Educational measurements	30	60	56	32	22	7	1	208	9.6	6
Mental measurements	28	58	50	35	15	7	1	194	9.0	7
Adolescent psychology	30	59	48	23	20	9	1	190	8.8	8
Statistical methods	19	40	40	23	15	4	2	143	6.6	9
Guidance	10	20	20	14	9	5	1	79	3.7	10
Total	298	648	538	364	213	82	21	2,164	100.0	

TABLE III

PROFESSIONAL SUBJECTS UNDERSCORED BY THE PRINCIPALS AS BEING OF MOST USE TO THEM

Subjects	Groups of Schools							Totals	Percents	Rank
	I	II	III	IV	V	VI	VII			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
High-school administration	14	37	23	21	8	3	.....	106	27.8	1
High-school supervision	9	27	22	9	8	3	1	79	20.7	2
Educational psychology	7	19	9	11	4	.....	.....	50	13.1	3
Philosophy of education	3	11	9	8	7	2	.....	42	11.0	4
High-school curriculum	5	9	10	5	4	1	.....	34	9.0	5
Adolescent psychology	5	5	7	5	3	.....	.....	25	6.6	6
Educational measurements	3	4	5	4	2	.....	.....	18	4.7	7
Mental measurements	2	3	2	2	2	.....	.....	13	3.4	8
Guidance	1	3	1	.....	1	1	1	8	2.1	9
Statistical methods	.....	2	1	1	1	1	.....	6	1.6	10
Total	51	122	89	66	40	11	2	381	100.0	

TABLE IV

FREQUENCY AND POTENCY OF TEN DESIGNATED PROFESSIONAL SUBJECTS AS INDICATED BY 391 SENIOR HIGH-SCHOOL PRINCIPALS

SUBJECTS	FREQUENCIES OF MENTION		POTENCY	RANK
	Without Respect to Usefulness of Subjects	With Respect to Usefulness of Subjects	Column 3 Divided by Column 2 (Percents)	
(1)	(2)	(3)	(4)	(5)
High-school administration	306	106	34.6	1
High-school supervision	256	79	30.8	2
Philosophy of education	253	42	16.6	3
Educational psychology	307	50	16.3	4
High-school curriculum	228	34	14.9	5
Adolescent psychology	190	25	13.2	6
Guidance	79	8	10.1	7
Educational measurements	208	18	8.7	8
Mental measurements	194	13	6.7	9
Statistical methods	143	6	4.2	10
Total	2,164	381		

TABLE V

HIGHEST DEGREES HELD

Degree	Groups of Schools							Totals	
	I	II	III	IV	V	VI	VII		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
None	1	1	.....	.....	1	1	.....	4	7
Normal school	2	1	.....	.....	.....	.....	.....	3	.....
Baccalaureate degree:									
A. B.	22	40	28	20	20	2	2	134	.....
B. S.	7	19	8	6	.....	1	.....	41	.....
Ph. B.	2	2	1	5	2	.....	.....	12	.....
B. Ped.	1	.....	.....	.....	.....	.....	.....	1	.....
B. L.	.....	1	1	.....	.....	.....	.....	2	.....
B. D.	.....	.....	.....	.....	1	.....	.....	1	191
Baccalaureate, plus	15	40	30	23	17	2	1	128	.....
Master's degree:									
A. M.	15	38	40	23	15	10	3	144	.....
M. S.	2	4	2	1	.....	.....	.....	9	.....
Ph. M.	.....	.....	.....	.....	1	.....	.....	1	.....
M. Ed.	.....	3	.....	.....	.....	.....	.....	3	.....
M. Ped.	.....	.....	1	.....	.....	.....	.....	1	158
Master's, plus	4	9	15	12	4	2	1	47	.....
Doctor's degree:									
Ph. D.	.....	.....	.....	1	2	.....	1	4	.....
M. D.	.....	.....	.....	1	.....	.....	.....	1	.....
Pd. D.	.....	.....	.....	.....	2	.....	1	3	.....
Sc. D.	.....	.....	.....	.....	.....	1	.....	1	.....
M. S. D.	.....	.....	.....	.....	1	.....	.....	1	.....
L. H. D.	.....	.....	.....	.....	.....	.....	1	1	11
Total	.....	.....	.....	.....	.....	.....	.....	.....	367

weight to their conclusions. Tables V, VI, and VII answer these questions. Their attainments were quite creditable. Only 7 had no degrees; 128, or 67 percent, of the 191 who had the baccalaureate degree were working towards the Master's; 47, or 30 percent, of the 158 holders of Master's degrees were

pursuing work towards the doctorate; and 11 were holders of the Doctor's degree, 4 of whom were doctors of philosophy. Fourteen principals did not indicate what degrees they held.

A list of ten professional journals was included in the inquiry. The principals were instructed to check the educational journals that they read. The journals named were: *American School Board Journal*, *Education*, *Educational Administration and Supervision*, *Educational Review*, *Journal of Education* (Boston), *Journal of Educational Research*, *School and Society*, *School Review*, *Teachers College Record*,[1] and an entry

TABLE VI

NUMBER OF PRINCIPALS WHO READ FROM ONE TO TEN OF THE DESIGNATED EDUCATIONAL JOURNALS

Number of Journals Read	Groups of Schools							Totals
	I	II	III	IV	V	VI	VII	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	3	2	1	1	1	1	1	10
2	11	21	10	4	3	.....	.....	49
3	13	16	10	13	4	1	.....	57
4	14	32	24	16	14	1	2	103
5	8	19	17	17	7	1	2	71
6	1	7	11	7	8	5	.....	39
7	1	6	5	2	3	5	.....	22
8	1	1	2	1	2	1	1	9
9	.....	1	3	1	2	.....	.....	7
10	.....	1	.....	.....	1	.....	.....	2
Total number of principals								369

TABLE VII

AGE AND EXPERIENCE OF PRINCIPALS

Age	Groups of Schools						
	I	II	III	IV	V	VI	VII
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Age of Principals						
Youngest	23	26	23	27	25	33	47
Median	36	35	39	43	44	46	52.5
Oldest	57	59	60	65	67	64	70
	Years of Experience*						
Least experience	1	0	0	1	1	3	6
Median experience	7.5	5.5	7.5	8.5	9.0	13.5	11.0
Most experience	20	32	34	41	32	35	36

* Educational experience other than as a high-school principal is not considered in this table.

[1] No meaning attaches to the order in which these magazines are named; they are listed alphabetically.

on the questionnaire, allowed for the inclusion of the local state journal. The number of journals read by the principals of each group and the totals indicating the number of journals read by all the principals are given in Table VI. This table shows that, of the ten designated, four journals are read more often than is any other number. Comparatively few read only one, or more than seven, of the journals named. Their professional magazine reading is not, however, limited to these ten publications. A large number mentioned other journals, particularly the *American Educational Digest* and *The Journal of the National Education Association* and the more specialized, or local, publications, such as the *Chicago School Journal*, *High Points*, and *The High School Teacher*. Magazines marked as being read only "occasionally," and the additional ones they wrote in, were not included in the data given in Table VI, for some might have read other journals, yet not have indicated them. No attempt was made to rank the ten journals in order of their popularity. Twelve principals did not indicate their reading. An interesting sidelight on human nature appears here; one principal wrote: "I am something of a heretic on monthly reviews outside of local problems," while another said, "My reading is my secret."

Data relating to the ages of the principals who participated in this project are briefly summarized in the upper section of Table VII. The youngest principal was 23 years of age, while the oldest was 70. The largest schools tended to have the oldest principals, when the median age was considered. There were but five principals who are over 60.

The lower half of Table VII gives information relating to the time these 381 principals have served in the high-school principalship. The length of service varies from none (persons who have just assumed a principalship) to 41 years. There is not a gradual increase in the median experience of the principals representing the larger schools. It is of some interest to note that the median age and the median experience of the principals are least in Group II.

THE BUREAU OF EDUCATIONAL RESEARCH AS AN INFORMATIONAL AGENCY

H. B. CHAPMAN
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THE early stages of the research movement, a decade and a half ago, were periods of exploration and experimentation. Research in education was an unchartered anticipation; no one knew exactly what a bureau should do, for there were no precedents and no defined objectives. At that time, instructional research, as we understand it today, was largely an impossibility because there were practically no adequate instruments of measurement generally available.[1] Not only was the number of tests small, but boards of education were not yet convinced of their merits, and they were loath to expend the taxpayers' money upon unproven devices. Intelligence tests were still in a rudimentary state and not at all satisfactory for general use. Terman was then engaged in experimental work on the

[1]This is the second of a series of articles on educational research bureaus by Dr. Chapman to appear in the EDUCATIONAL RESEARCH BULLETIN.

derivation of the Stanford Revision of the Binet Simon Scale. By an interesting coincidence, it was through the contacts made by Terman, at Oakland, that the first bureau of research upon the Pacific Coast was established.

From the start, however, the bureau of educational research has been conceived as a fact-finding and fact-disseminating agency; not necessarily a publicity organization, but rather a source of information to which city superintendents might turn for aid in determining and formulating administrative and instructional policies. This idea as embodied in an organization to which questions of all kinds might be referred has, in many cases, taken tangible form in the title, "bureau of reference and research."

The reference function bulked considerably larger in the early days of the research movement than it does today. Research was then in an experimental stage, and it was necessary for the director to establish confidence by judicious acts. Answering questionnaires and assembling data about the school system were, in the case of a city bureau, forms of activity which would directly relieve the superintendent and in the majority of cases would offend no one. Consequently this job was turned over to the new bureau. One director wrote, in his annual report, that by collecting data for questionnaires he had become the best-informed man, in the city, on the school system as a whole. However, it was an expertness gained, in his opinion, at the sacrifice of time and energy which should have been devoted to more constructive efforts.

The reference problem generally falls into two logical divisions which are the supplying of data to superior officers, usually on subjects pertaining to the furtherance or the formulation of work programs; and the supplying of incidental information, usually to persons not connected with the school organization of which the bureau is a part. The first of these embraces the regular fact-finding activities of the bureau; the latter has reference to sporadic and occasional calls. The latter type of service is still of very great importance, although it is a form of activity which does not lend itself readily to quantitative records nor to classification. Many requests for information are received orally, often at inopportune places. Replies are frequently oral, or by the issuance of printed or mimeographed material of which no record is retained.

To procure evidence as to the extent of the reference service, it was necessary that a special record be kept. Two bureaus have done this for us. Through the kindness of Miss L. Belle Voegelein, reference assistant at the Bureau of Educational Research, Ohio State University, and of Mr. A. D. Simpson, director of the Division of Research and Surveys of the Connecticut State Board of Education, the results are now available for distribution.

All inquiries received by the Reference Division of the Ohio State Bureau during the months of March and April, 1926, were noted, but not the questions which were asked of the research staff. Sixty-four requests for information were received, only nine of which received written responses. The nature of these nine varied widely. There were requests for references to material dealing with "weighted credits," the construction of courses of study in high-school English, and the relation of success in school and business to intelligence. One teacher desired a list of plays suitable for a seventh-grade class of boys. Data were sought on the percent of failures of boys and girls in high-school subjects, the mentality of negro children of school age as determined by mental tests, and on the advisability of free textbooks; a county superintendent asked for assistance in the formulation of a program for

the dedication of a new high-school building. Five of the nine requests were received from teachers, one from a principal, two from city superintendents, and one from a county superintendent.

The fifty-five questions which were received orally and to which no written response was deemed necessary, were classified under the following five general headings:

1. Clerical information, which consisted of requests concerning spelling, punctuation, names, and addresses—information which is obtainable from an index, a directory, or a dictionary. Such questions as "Is an apostrophe used with teachers in designating Detroit Teachers College?" were placed in this group.
2. Requests for information on procedure, as, for example, "How does one order proof sheets of Library of Congress cards?"
3. Fact questions on the administration of schools.
4. Fact questions regarding curriculum and personnel—teachers and teaching.
5. Miscellaneous information under which questions not classifiable in any of the foregoing divisions were placed.

Table I gives the number of requests received under each heading during March and April, 1926.

Some of the questions which were reported and may be of general interest, are given as follows, preceded by their classification group:

1. "What does *passim* mean in a bibliographical citation?" "What are the initials of a man by the name of McGilvary who contributes to the *Hibbert Journal* and the first name of Hartshorne who is interested in character tests?"
2. "What school unit or organization has the state of Louisiana comparable to counties in other states?" "How are cooperative part-time schools of Fitchburg, Massachusetts, conducted?"
3. "What are some typical examination questions in geography?" "What are the uses of tests in biology?"
4. "How does one write a letter of application?" "What are the different systems used in classifying books?"

The Division of Research and Surveys of Connecticut kept a similar record for us during December, 1925, and January, 1926, during which period eighty-one requests were received. These were tabulated according to a somewhat different scheme on account of the difference in the type of material requested. "Requests for the *Connecticut Register and Manual*" refers to a statistical volume published by the state and containing general information about the state. The other headings are self-explanatory.

TABLE I

REQUESTS FOR INFORMATION RECEIVED BY BUREAU OF EDUCATIONAL RESEARCH, OHIO STATE UNIVERSITY, CLASSIFIED BY TYPE AND SOURCE

CLASSIFICATION	PERSONS MAKING REQUESTS				TOTAL
	Bureau Staff Members	Graduate Students	Undergraduate Students	Others	
(1)	(2)	(3)	(4)	(5)	(6)
1. Clerical information	7	5	.....	2	14
2. Directory...	3	1	1	1	6
3. School administration...	2	9	5	.....	16
4. Teachers and teaching...	4	3	2	1	10
5. Miscellaneous information	3	4	1	1	9
Total....	19	22	9	5	55

Type of Information Requested	Number
1. Requests for *Register and Manual*.....	12
2. Statistical data, reports, etc.....	37
3. School organization and teaching.....	20
4. Miscellaneous information.....	12
Total.....	81

In contrast to the Ohio bureau where the great majority of requests were oral, the number of oral requests received by the Connecticut bureau was only seventeen, or 21 percent of the total received. Fifty-five percent of the requests for data of various kinds were received from outside the state. It will be seen from the table just preceding that nearly half of the requests received were for

statistical data and reports, such as costs, salaries, and revenues. These came from individuals and school officers as far removed as Colorado and Texas, as well as from the people of Connecticut.

The requests classified under school organization and teaching covered a wide range of topics. Three persons desired information on Bible reading in Connecticut schools, an inquiry which probably grew out of the Fundamentalist controversy. A representative of the *Farm Journal*, of Philadelphia, wished to know the subjects taught and equipment used in Connecticut schools. The telephone company asked for the school enumeration for the past twenty-five years. The National Auto Chamber of Commerce of the city of New York sought information on consolidation in Connecticut. An assistant in collegiate administration wrote for data on the budgetary processes employed in the state. These few samples indicate the wealth of information which a state bureau is expected to have at hand.

We should have more detailed statistics upon the information service which is being rendered by research bureaus. They are interesting and valuable since they show the extent to which these organizations are serving a real need. The research bureau not only is a producer; it is also a consumer, and at the same time a far-reaching distributor.

EDUCATIONAL READINGS

DARSIE, MARVIN L. *A Method of Determining Composite Educational Scores*, *JER*, 14: 270–74, November, 1926.

Every administrator who has worked with tests has felt the need of some method of obtaining a reliable composite score from widely different tests. One method of doing this is presented in this article.

MOEHLMAN, ARTHUR B. *Some Considerations in Building Salary Schedules*, *JER*, 14:256–69, November, 1926.

The author has assumed that there is a determinable ratio between teachers' salaries and the wages of skilled and unskilled labor. On the basis of this relationship, a tentative salary schedule is built up, including a differential for development and merit.

BUCKINGHAM, B. R. *The Greatest Waste in Education*, *S&S*, 24:653–58, November 27, 1926.

While this is not a research article, yet it is based on the wide experience of one who is known in all circles where educational research is mentioned. In it the author develops the thesis that all school subjects are worth while; that attitudes, appreciations, and ideals, however important they are, depend upon well-learned knowledges, habits, and skills; and that the deterioration and loss of these through infrequent or non-use after school days are over constitutes "the greatest waste in education" to the individual and to society, and implies a "great, useless expenditure of time, money, and energy."

ROGERS, DON C. *A Study of Pupil Failures and Subject Failures in Chicago*, *JER*, 14:247–55, November, 1926.

The failure of school pupils and the resultant waste to the pupils and to the city have become matters of increasing concern. The data presented in this article shed additional light on the problem. Not the least valuable feature of the study is the table of "causes of failure and success," based on the reports of principals of schools with both high and low percents of failure.

WHITE, B. F. *Supervised Study: Has It a Value?* *ASBJ*, 73:48, 143, October, 1926.

The study attempted to ascertain the effect of supervised study in Kansas high schools upon success in making grades in the University of Kansas. One hundred and thirty-five students from supervised study high schools and the same number from non-supervised were taken. The results indicate a small advantage in favor of the supervised group. The author states that supervised study seems to help the poorer students more than the good ones because, in general, it is the better ones who attend the university. Supervised study might prove more valuable in the high school than the results of this study indicate.

NOTE.—The abbreviations used in this number are: *JER*, Journal of Educational Research; *S&S*, School and Society; *ASBJ*, American School Board Journal; *JEM*, Journal of Educational Method; and *PJE*, Peabody Journal of Education.

MEAD, CYRUS D. *Scaling Lessons Taught, JEM*, 6:115–19, November, 1926.

The writer proposes a technique based on statistical procedure which may be used as a scale to determine objectively the quality of a given lesson taught. It is to be assumed that the plan set forth is a tentative one which will be subjected to later refinements, since five "contemplated improvements" are listed at the close of the article. When these are completed, it is thought that the scale will have a more distinct application in a wider range of teaching situations.

ALLEN, WILLIAM C. *Compulsory Military Training for Boys in Australia and New Zealand, SS*, 24:470–74, October 16, 1926.

The writer presents a brief résumé of the situation in these countries since the passage of the Defense Acts of New Zealand in 1909. He points out illustrations of prosecutions of boys and their parents who have made conscientious objections to that type of service. He will undoubtedly be denounced in certain quarters as a pacifist. There is enough revealed, however, to be worthy of thoughtful consideration by school people in this country.

CRAWFORD, C. C. *Some Comparisons of Freshman Boys and Girls, SS*, 24:494–96, October 16, 1926.

A comparison was made between boys and girls, on thirty-six items, of the University of Idaho freshman class, in the first semester, 1924–25. The girls had better records than the boys in the majority of cases—the boys having higher grades in but one subject, mathematics. The argument concludes with the following sentence: "Possibly the explanation of the difference between the scholarship of the sexes may lie in the direction indicated by a Senior who in discussing this report with the writer, said: 'But boys have so many more things they can do to entertain themselves that you can't blame them for having a good time and neglecting their studies more than girls.' "

HILLMAN, JAMES E. *Some Aspects of the Training and Equipment of Department Heads of Two-Year Normal Schools, PJE*, 4:152–57, November, 1926.

The head of each department in a teacher-training institution should, according to this study, have at least a Bachelor's degree—half of those reporting would insist on a Master's degree, about 24-hours training in his special subject, and a knowledge of methods in that special subject, history of education, and educational psychology. He should also have had from five to eight years of teaching experience in the elementary schools, and should expect to teach from 15 to 18 hours per week. A reasonable salary is supposed to lie between $2,000 and $4,000, with a differential in favor of men.

ROEMER, JOSEPH. *Freshman Failures in Southern Colleges, PJE*, 4:142–51, November, 1926.

Those who are interested in higher education will find some very illuminating material in this article. A few of the pertinent facts disclosed are that there is a wide range in the percent of failures in the various southern institutions, that the state universities fail more Freshmen than other colleges and universities, that teacher-training institutions fail the fewest, that colleges for men fail more Freshmen than colleges for women, and that there seems to be no scientific basis used by the higher institutions in marking their students.

IN PAPER COVERS

ODELL, CHARLES W. *The Interpretation of the Probable Error and the Coefficient of Correlation.* Urbana, Illinois, 1926. 49 pp. (University of Illinois Bulletin, Vol. XXIII, No. 52)

These common statistical devices are almost as much abused as used. The chapters will serve to make somewhat clearer the meaning of these abstractions, unless the treatment of probable error as median deviation and as a unit of measure confuses the reader. Probable error is an accepted name and has the sanction of several years of statistical usage, both as a deviation and as a unit. The occasional user of statistics will find the bulletin worthy of a careful reading.

COXE, WARREN W. *A Study of Pupil Classification in the Villages of New York State.* Albany, New York, University of the State of New York, 1925. 59 pp. (University of the State of New York Bulletin, No. 841)

The study is based upon the conditions existing in thirty-seven villages in New York. The conditions can best be expressed in Dr. Coxe's own words: "Probably the most outstanding fact which one gleans from the preceding discussion is that the thirty-seven villages do not follow any system of classification or grading; that is, there is no generally recognized standard for grouping children. Furthermore, very few of the villages show any definite tendency in this regard. The few that do have any policy or standard with regard to classifying children differ from each other very materially."

IRMINA, SISTER M. *A Study of Language and Grammar Tests.* Washington, D. C., The Catholic Education Press, 1926. 40 pp. (Educational Research Bulletins, Vol. I, No. 8)

Ten of the widely known language and grammar tests were used in this experiment. Correlations and statistical comparisons are worked out for the various combinations of tests. Very low correla-

tions were found between the best language tests and the grammar tests. "If formal grammar is to hold a place in the elementary-school curriculum its justification will have to be substantiated on other bases than the contribution which it makes to correct language usage." While the study is well done, it is doubtful if the small number of cases warrants the elaborate statistical treatment which has been accorded the basic data.

MERRY, BLANCHE. *Child-Accounting in Indiana.* Indianapolis, Indiana, State Department of Public Instruction, 1926. 70 pp. (Bulletin No. 85)

From the blanks, "Report to Attendance Board," returned to the Division of Attendance, Indiana Department of Public Instruction, by the schools of the state, the data summarized in this booklet were compiled. Enrollment figures and age-grade data are included. The number of pupils of normal age for each grade as well as the proportions of accelerated and retarded pupils are shown in a series of graphs for public and parochial schools of city districts, county districts, and for the state as a whole.

ULERY, C. B. *A Little Learning Is a Dangerous Thing.* Columbus, Ohio, Department of Education, 1926. 24 pp. (Teacher Training Series, No. 11)

The Department of Education is making an effort to improve the teaching of the state through the elimination of some of the poorest candidates, and through remedial instruction for those who are weak on the subject tests. Tests are recommended, the standards are given, and suggestions for remedial work are provided. Teacher-training institutions are required to provide special hospital classes for those needing the remedial instruction.

BOOKS TO READ

FLEMMING, CECILE WHITE. *A Detailed Analysis of Achievement in High School.* New York, Teachers College, Columbia University, 1925. xi+209 pp. (Teachers College, Columbia University, Contributions to Education, No. 196)

The purpose and method of this book can perhaps best be summarized in the author's own words:

"The study is an effort to show the value which each of the several types of measure and rating has singly, and the contribution which it makes to a combined estimate of pupils' accomplishment in the high school; to show the significance of each of several test scores and ratings on the basis of (1) its individual correlation with a criterion of academic achievement, (2) its correlation with comparative subsidiary criteria, (3) its intercorrelations with the other instruments; to note its value when elements common to other scores are eliminated by partial correlation; and finally, (4) to determine its unique value in building up by multiple correlation a measure of pupil success. We need to know how intelligence and other potent traits are associated with one another, if we are to have the most concrete understanding of their influence, separate and in combination, upon school achievement."

TERRY, PAUL W. *Extra-Curricular Activities in the Junior High School.* Baltimore, Warwick and York, 1926. 122 pp.

The information regarding extra-curricular activities summarized in this book was gathered from eighty-two junior high schools, twenty-five of which have enrollments of from five hundred to less than a thousand. The reader is impressed with the large number of organizations listed—ranging from seven to thirty-eight in a single school. Forty-six of these organizations were listed by at least two schools. The methods of determining membership within these groups varied as did the credit given for participation and the relation of the organization to the teachers and principal. The author reports the extra-curricular situation as it is and also indicates some of the attendant problems.

HOLLINGWORTH, LETA S. *Gifted Children: Their Nature and Nurture.* New York, Macmillan Company, 1926. xxiv+374 pp.

Within the twelve chapters of this book is summarized our present-day knowledge about gifted children and the educational problems which they present. The topics discussed include: history of research on gifted children, methods of identification, physical growth and motor ability, character and interests, heredity, special talents, case studies of children having intelligence quotients of more than 180, experimental education of the gifted, organization of curriculum, and socio-economic implications.

BUSWELL, G. T. *Diagnostic Studies in Arithmetic.* Chicago, University of Chicago Press, 1926. xiii+212 pp. (Supplementary Educational Monographs, No. 30)

This monograph, which may well be considered a major contribution to the science of elementary education, is probably too technical to be of interest to many classroom teachers. Its contents should be passed on to them by the supervisors at the teachers' meetings. Three methods of diagnosis are suggested: the investigation in eye-movements in column addition, the time measure of doing each item in complicated processes such as long division, and controlled observation of children's errors as they work.

The author's suggestions concerning textbooks will be suggestive to persons responsible for the selection of textbooks.